



A.D. 1858, 31st JULY. N^o 1735.

S P E C I F I C A T I O N

OF

JOHN HOUSTON.

CONSUMING SMOKE IN FURNACES.

LONDON:

PRINTED BY GEORGE E. EYRE AND WILLIAM SPOTTISWOODE,
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25, SOUTHAMPTON BUILDINGS, HOLBORN.



A.D. 1858, 31st JULY. N° 1735.

Consuming Smoke in Furnaces.

LETTERS PATENT to John Houston, of Nelson Square, Blackfriars Road, in the County of Surrey, Gentleman, for the Invention of “**IMPROVEMENTS IN THE MEANS OF EFFECTING THE CONSUMPTION OF SMOKE IN FURNACES.**”

Sealed the 1st November 1858, and dated the 31st July 1858.

PROVISIONAL SPECIFICATION left by the said John Houston at the Office of the Commissioners of Patents, with his Petition, on the 31st July 1858.

I, JOHN HOUSTON, of Nelson Square, Blackfriars Road, in the County of Surrey, Gentleman, do hereby declare the nature of my said Invention for “**IMPROVEMENTS IN THE MEANS OF EFFECTING THE CONSUMPTION OF SMOKE IN FURNACES.**”

This Invention consists in first of all preventing the smoke from ascending directly from the ordinary smoke box (as it does in furnaces of the usual construction) by means of a damper or valve, which shuts in when required the lower part of the stack from the atmosphere; and at or near the top or other convenient position in the smoke box I have a reverberatory tube or pipe, and just above the smoke box a blowpipe or pipes, which blowpipe or

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pipes, as the smoke is prevented from ascending from the chimney as aforesaid will cause much of the smoke, &c. generated to return to the burning fuel in the fire-place, and be destroyed ; that which passes into the smoke box will pass through the reverberatory pipe into a chamber attached to the furnace, where I have jets of flame, which are intensified and directed by a blowpipe 5 or pipes, and this portion of the smoke will pass back into the smoke box and fireplace, and thus the whole of the smoke will be consumed.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said John Houston in the Great Seal Patent Office on the 29th January 1859. 10

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, JOHN HOUSTON, of Nelson Square, Blackfriars Road, in the County of Surrey, Gentleman, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Thirty-first day of July, in the year of our Lord One 15 thousand eight hundred and fifty-eight, in the twenty-second year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said John Houston, Her special licence that I, the said John Houston, my executors, administrators, and assigns, or such others as I, the said John Houston, my executors, administrators, and assigns, should at any time agree 20 with, and no others, from time to time and at all times thereafter during the term of years therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for “IMPROVEMENTS IN THE MEANS OF EFFECTING THE CONSUMPTION OF SMOKE IN FURNACES,” upon 25 the condition (amongst others) that I, the said John Houston, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office 30 within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said John Houston, do hereby declare the nature of the said Invention, and in what manner the same is to be per-

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formed, to be particularly described and ascertained in and by the following statement, that is to say :—

This Invention will be readily understood from the following statement before referred to, and by referring to the accompanying Drawings ; in which Fig. 1
5 denotes a plan view of an arrangement which may be adopted in that kind of boilers called “stationary.” In this case there is a damper in the chimney (not seen in the Drawing) for shutting in when deemed necessary the lower part of the stack from the atmosphere, and thus temporarily preventing, as when “firing,” the smoke from ascending directly from the smoke box beneath it.
10 This smoke box is a development of a smoke chamber A, wherein is a tube or pipe B conveying gas (generated extra and independent of the furnace), which is ignited at the perforations or opening, and beyond this is an air or blowpipe C, which air or blowpipe as the smoke is prevented from ascending from the chimney, as aforesaid, will keep up a due supply of air, so
15 that the gas flame may act upon the nascent smoke coming from the burning fuel in the fire grate, and destroy it.

Fig. 2 is a transverse section, and Fig. 3 a longitudinal view, of a common cylindrical boiler and furnace, the above arrangement being modified so that instead of having a gas pipe at some distance behind the bridge, here the gas
20 pipe G leads into a hollow bridge H, as does the air pipe I, and at top of the hollow bridge is a very fine opening at which the gas is ignited.

Fig. 4, a transverse section of a cylindrical boiler with a fire-place inside. G, gas pipe ; I, air pipe ; H, hollow bridge. The description of Figs. 2 and 3 will apply to this Figure.

25 Fig. 5, view of a tubular boiler with this Invention applied to its furnace. Things here depicted other than those above mentioned being noted on the Drawing.

Having now described the said Invention, and in what manner the same is to be performed, as required by the aforesaid Letters Patent, I hereby
30 declare that I claim not the separate and distinct details above mentioned, but the improvements in the means of effecting the consumption of smoke, wherein provision is made (by means of a damper, for instance), for preventing the smoke from ascending directly from the ordinary smoke box beneath the chimney, as also for a tube or pipe or passage way for gas generated indepen-
35 dent of the furnace, so as to admit said gas at, near, or behind the back of the fire-grate ; perforations or an opening or openings being provided in such tube or pipe or passage way, so that the gas may be ignited (and ignition may be maintained by an air pipe or blowpipe), and jets or a stream or streams of

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flame obtained (which may, if deemed requisite, be intensified and directed upon the burning fuel and nascent smoke), whereby the smoke can be consumed or destroyed.

In witness whereof, I, the said John Houston, have hereunto set my hand and seal, this Twenty-eighth day of January, in the year of our Lord 5 One thousand eight hundred and fifty-nine.

JOHN HOUSTON. (L.S.)

Signed and sealed in my presence

F. W. CAMPIN, Patent Agent,
156, Strand.

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FIG. 2.

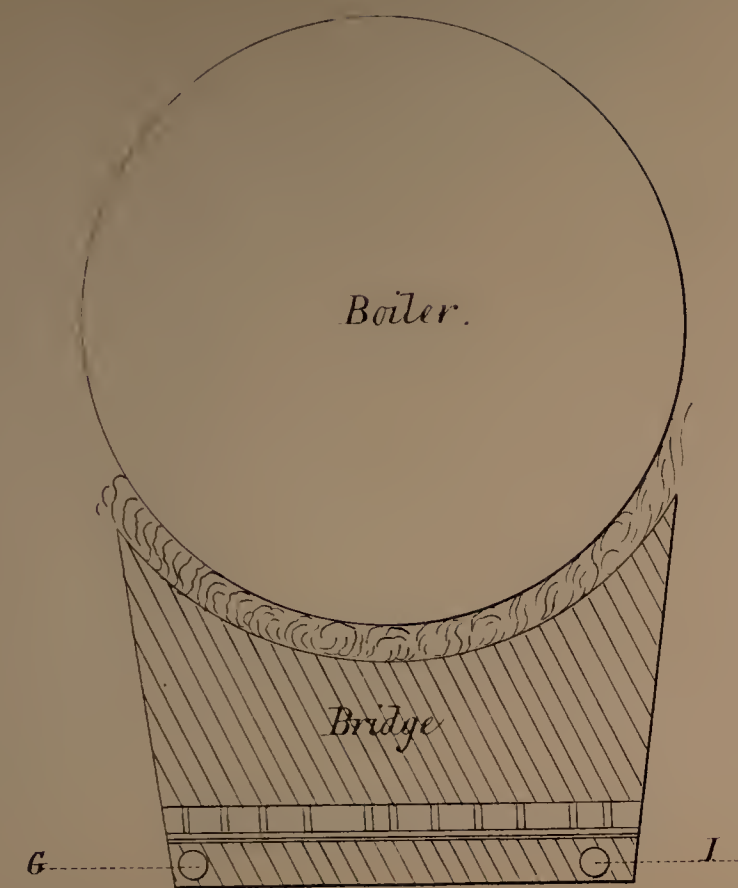


FIG. 3.

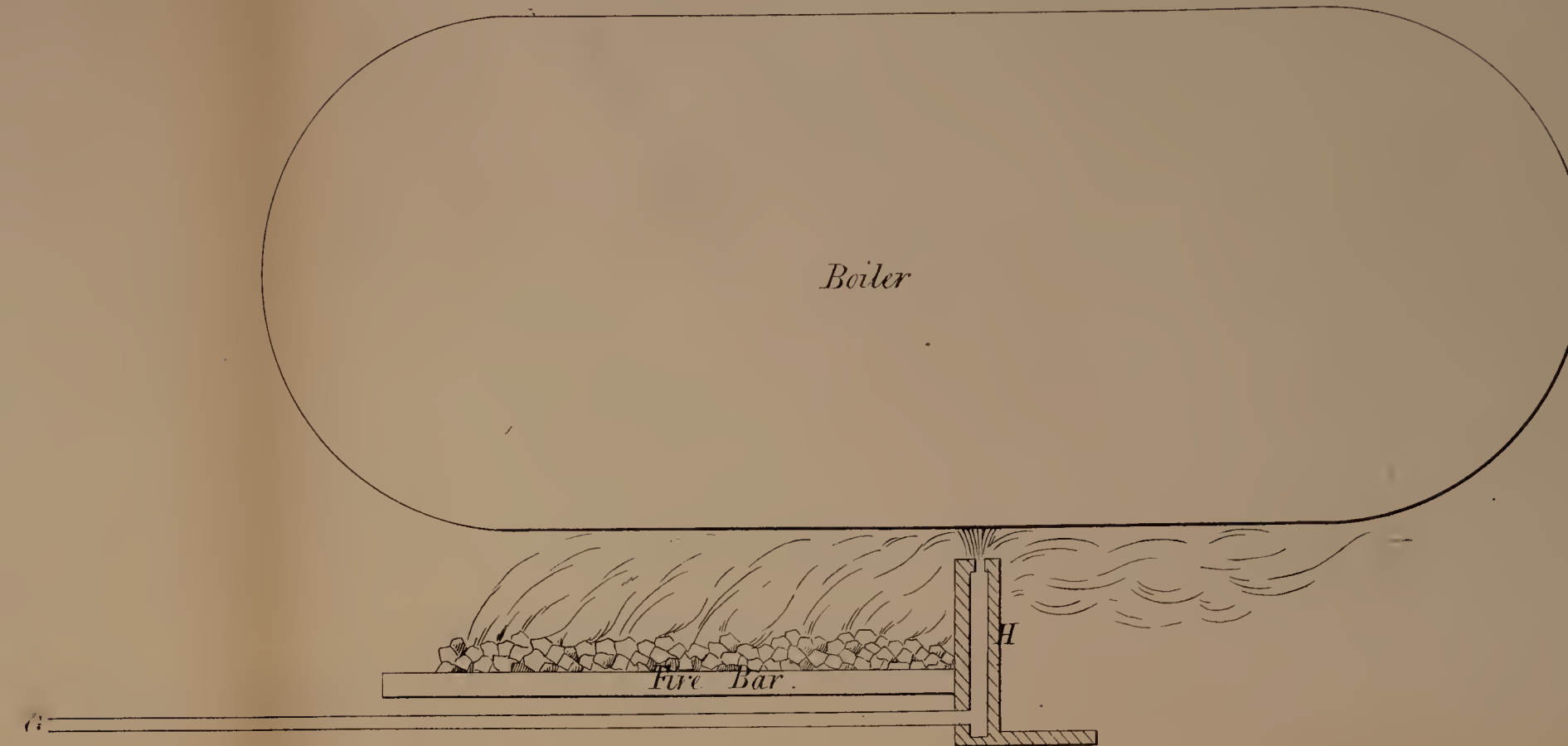


FIG. 1.

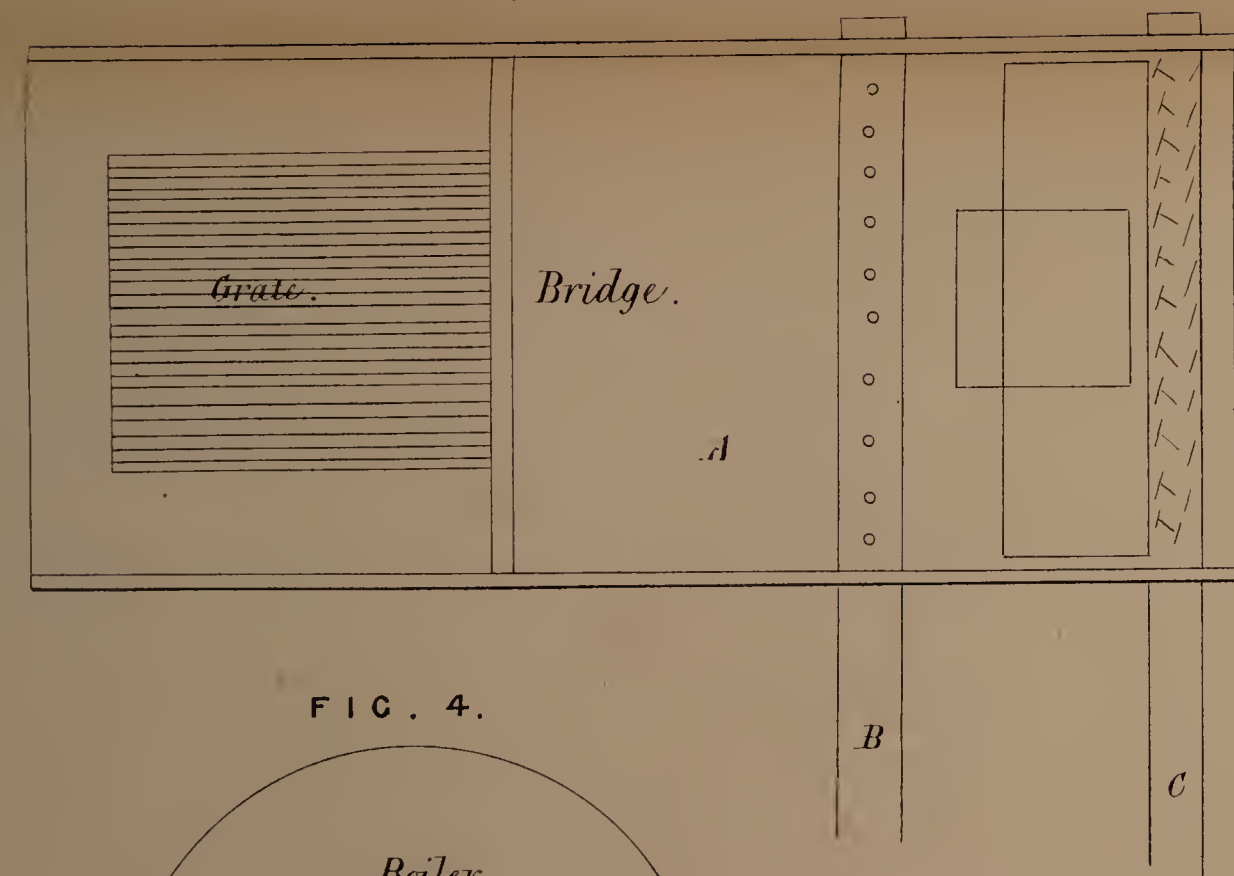


FIG. 4.

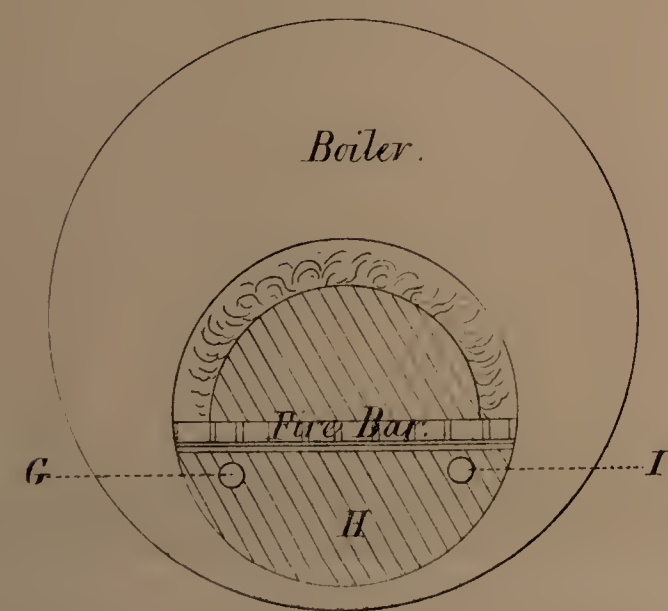
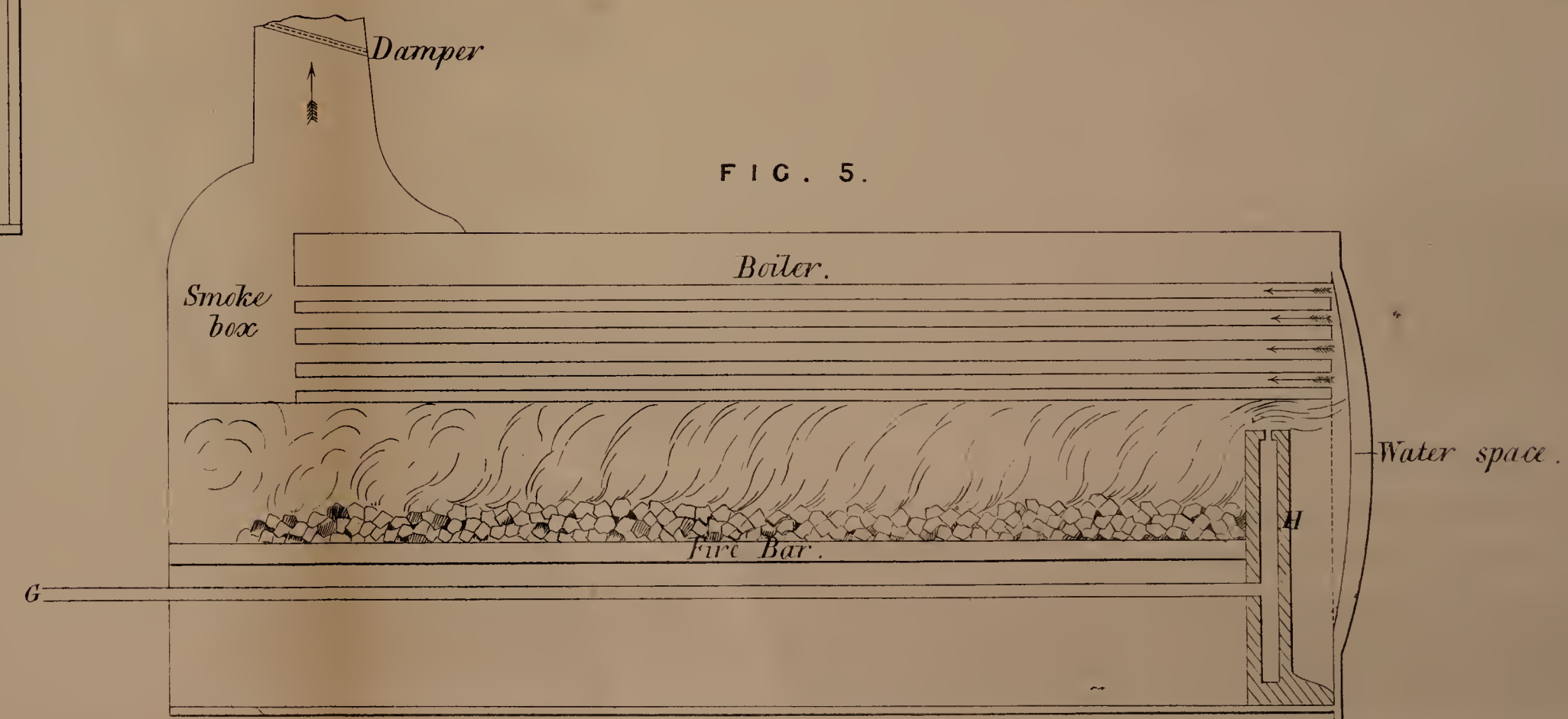


FIG. 5.



The filed drawing is partly colored.

Drawn on Stone by Malby & Sons.

